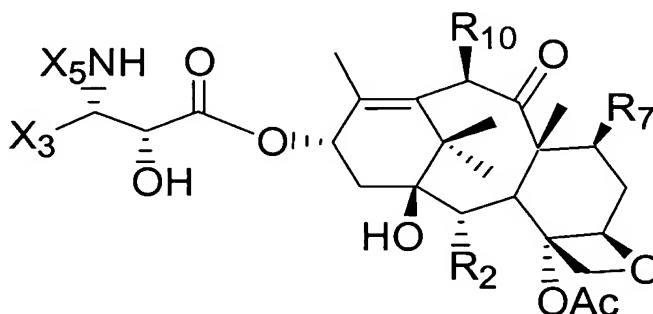


Claims

1. A method of inhibiting tumor growth in a mammal, said method comprising administering a therapeutically effective amount of a composition comprising at least one pharmaceutically acceptable carrier and a taxane having the formula

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wherein

X₃ is 2-thienyl, 3-thienyl, 2-furyl, 3-furyl, 2-pyridyl, 3-pyridyl, 4-pyridyl, isobutenyl, isopropyl, cyclopropyl, cyclobutyl or cyclopentyl;

10 X₅ is -COX₁₀ and X₁₀ is isobutenyl, 2-furyl, 3-furyl, 2-thienyl, 3-thienyl, 2-pyridyl, 3-pyridyl, 4-pyridyl, butenyl, isobutyl or n-propyl or X₅ is -COOX₁₀ and X₁₀ is ethyl, n-propyl, isopropyl, or isobutyl;

R₂ is benzoyloxy;

R₇ is R_{7a}OCOO-;

R₁₀ is hydroxy; and

15 R_{7a} is methyl or ethyl.

2. The method of claim 1 wherein X₃ is 2-thienyl, 3-thienyl, 2-furyl, 3-furyl, isobutenyl or cyclopropyl and X₅ is -COX₁₀ and X₁₀ is isobutenyl, 2-furyl or 2-thienyl or X₅ is -COOX₁₀ and X₁₀ is isopropyl or isobutyl.

3. The method of claim 1 wherein X₃ is thienyl.

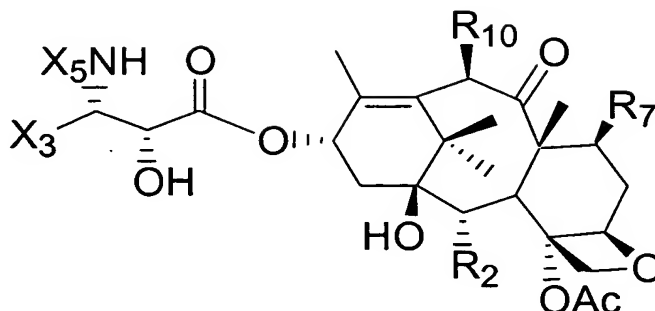
4. The method of claim 1 wherein X₃ is 2-thienyl.

5. The method of claim 1 wherein X₃ is furyl.

6. The method of claim 1 wherein X₃ is 2-furyl.

7. The method of claim 1 wherein R_{7a} is methyl.
8. The method of claim 1 wherein R_{7a} is ethyl.
9. The method of claim 1 wherein X_5 is $-\text{COOX}_{10}$ and X_{10} is isopropyl.
10. The method of claim 7 wherein X_3 is thienyl.
11. The method of claim 7 wherein X_3 is 2-thienyl.
12. The method of claim 7 wherein X_3 is furyl.
13. The method of claim 7 wherein X_3 is 2-furyl.
14. The method of claim 8 wherein X_3 is thienyl.
15. The method of claim 8 wherein X_3 is 2-thienyl.
16. The method of claim 8 wherein X_3 is furyl.
17. The method of claim 8 wherein X_3 is 2-furyl.
18. The method of claim 9 wherein X_3 is thienyl.
19. The method of claim 9 wherein X_3 is 2-thienyl.
20. The method of claim 9 wherein X_3 is furyl.
21. The method of claim 9 wherein X_3 is 2-furyl.
22. A method of inhibiting tumor growth in a mammal, said method comprising administering a therapeutically effective amount of a composition comprising at least one pharmaceutically acceptable carrier and a taxane having the formula

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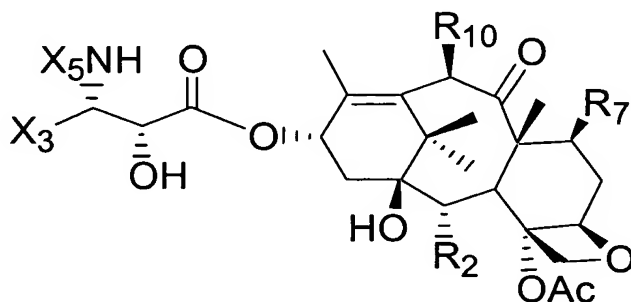
wherein

- 10 X_3 is 2-furyl, 3-furyl, 2-thienyl or 3-thienyl;
 X_5 is $-COX_{10}$ and X_{10} is trans-propenyl;
 R_2 is benzyloxy;
 R_7 is $R_{7a}OCO^-$;
 R_{10} is hydroxy; and
 R_{7a} is methyl or ethyl.

23. The method of claim 22 wherein R_{7a} is methyl.
24. The method of claim 22 wherein R_{7a} is ethyl.
25. The method of claim 23 wherein X_3 is thienyl.
26. The method of claim 23 wherein X_3 is 2-thienyl.
27. The method of claim 23 wherein X_3 is furyl.
28. The method of claim 23 wherein X_3 is 2-furyl.
29. The method of claim 24 wherein X_3 is thienyl.
30. The method of claim 24 wherein X_3 is 2-thienyl.
31. The method of claim 24 wherein X_3 is furyl.
32. The method of claim 24 wherein X_3 is 2-furyl.

33. A method of inhibiting tumor growth in a mammal, said method comprising administering a therapeutically effective amount of a composition comprising at least one pharmaceutically acceptable carrier and a taxane having the formula

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wherein

X₃ is 2-furyl;

X₅ is -COX₁₀ and X₁₀ is isobutenyl or X₅ is -COOX₁₀ and X₁₀ is t-butyl or t-amyl;

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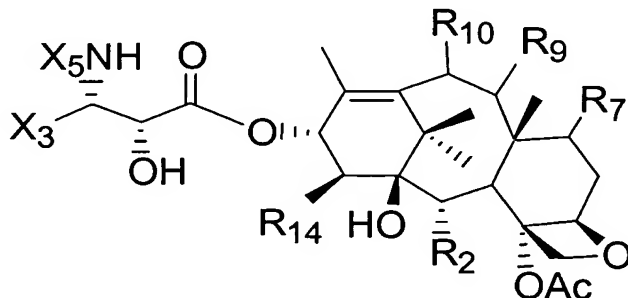
R₂ is benzoyloxy;

R₇ is R_{7a}OCOO-;

R₁₀ is hydroxy; and

R_{7a} is benzyl.

34. A method for preparing a pharmaceutical composition comprising mixing at least one nonaqueous, pharmaceutically acceptable solvent and a taxane having the formula



wherein

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R₂ is acyloxy;

R₇ is carbonate;

R₉ is keto, hydroxy, or acyloxy;

- 10 R_{10} is hydroxy;
 R_{14} is hydrido or hydroxy;
 X_3 is substituted or unsubstituted alkyl, alkenyl, alkynyl or heterocyclo;
 X_5 is $-\text{COX}_{10}$, $-\text{COOX}_{10}$, or $-\text{CONHX}_{10}$;
 X_{10} is hydrocarbyl, substituted hydrocarbyl, or heterocyclo; and
Ac is acetyl.

37. The method of claim 36 wherein X_3 is 2-furyl, 3-furyl, 2-thienyl, 3-thienyl, 2-pyridyl, 3-pyridyl, 4-pyridyl, $C_1 - C_8$ alkyl, $C_2 - C_8$ alkenyl, or $C_2 - C_8$ alkynyl.

38. The method of claim 36 wherein R_7 is $R_{7a}\text{OCOO-}$ and R_{7a} is methyl or ethyl.

39. The method of claim 36 wherein X_5 is $-\text{COX}_{10}$ and X_{10} is substituted or unsubstituted phenyl, 2-furyl, 3-furyl, 2-thienyl, 3-thienyl, 2-pyridyl, 3-pyridyl, 4-pyridyl, $C_1 - C_8$ alkyl, $C_2 - C_8$ alkenyl, or $C_2 - C_8$ alkynyl, or X_5 is $-\text{COOX}_{10}$ and X_{10} is substituted or unsubstituted $C_1 - C_8$ alkyl, $C_2 - C_8$ alkenyl, or $C_2 - C_8$ alkynyl.

40. The method of claim 36 wherein X_3 is 2-furyl, 3-furyl, 2-thienyl, 3-thienyl, 2-pyridyl, 3-pyridyl, 4-pyridyl, $C_1 - C_8$ alkyl, $C_2 - C_8$ alkenyl, or $C_2 - C_8$ alkynyl, R_7 is $R_{7a}\text{OCOO-}$ and R_{7a} is methyl or ethyl.

41. The method of claim 36 wherein X_3 is 2-furyl, 3-furyl, 2-thienyl, 3-thienyl, 2-pyridyl, 3-pyridyl, 4-pyridyl, $C_1 - C_8$ alkyl, $C_2 - C_8$ alkenyl, or $C_2 - C_8$ alkynyl, X_5 is $-\text{COX}_{10}$ and X_{10} is substituted or unsubstituted phenyl, 2-furyl, 3-furyl, 2-thienyl, 3-thienyl, 2-pyridyl, 3-pyridyl, 4-pyridyl, $C_1 - C_8$ alkyl, $C_2 - C_8$ alkenyl, or $C_2 - C_8$ alkynyl, or X_5 is $-\text{COOX}_{10}$ and X_{10} is substituted or unsubstituted $C_1 - C_8$ alkyl, $C_2 - C_8$ alkenyl, or $C_2 - C_8$ alkynyl.

42. The method of claim 36 wherein R_7 is $R_{7a}\text{OCOO-}$ and R_{7a} is methyl or ethyl, X_5 is $-\text{COX}_{10}$ and X_{10} is substituted or unsubstituted phenyl, 2-furyl, 3-furyl, 2-thienyl, 3-thienyl, 2-pyridyl, 3-pyridyl, 4-pyridyl, $C_1 - C_8$ alkyl, $C_2 - C_8$ alkenyl, or $C_2 - C_8$ alkynyl, or X_5 is $-\text{COOX}_{10}$ and X_{10} is substituted or unsubstituted $C_1 - C_8$ alkyl, $C_2 - C_8$ alkenyl, or $C_2 - C_8$ alkynyl.

43. The method of claim 36 wherein X_3 is 2-furyl, 3-furyl, 2-thienyl, 3-thienyl, 2-pyridyl, 3-pyridyl, 4-pyridyl, $C_1 - C_8$ alkyl, $C_2 - C_8$ alkenyl, or $C_2 - C_8$ alkynyl, R_7 is $R_{7a}OCOO-$, R_{7a} is methyl or ethyl, X_5 is $-COX_{10}$ and X_{10} is substituted or unsubstituted phenyl, 2-furyl, 3-furyl, 2-thienyl, 3-thienyl, 2-pyridyl, 3-pyridyl, 4-pyridyl, $C_1 - C_8$ alkyl, $C_2 - C_8$ alkenyl, or $C_2 - C_8$ alkynyl, or X_5 is $-COOX_{10}$ and X_{10} is substituted or unsubstituted $C_1 - C_8$ alkyl, $C_2 - C_8$ alkenyl, or $C_2 - C_8$ alkynyl.
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44. The method of claim 36 wherein X_3 is thienyl.
45. The method of claim 36 wherein X_3 is 2-thienyl.
46. The method of claim 36 wherein X_3 is furyl.
47. The method of claim 36 wherein X_3 is 2-furyl.